DODPOPHM/USA/DOD/NADTR93008

# PERFORMANCE ORIENTED PACKAGING TESTING OF JATO IGNITER WOOD BOX FOR PACKING GROUP II SOLID HAZARDOUS MATERIALS

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This Performance Oriented Packaging (POP) test was conducted to ascertain whether the JATO Igniter Wood Box (Drawing #3361AS100) meets the Packing Group II requirements specified by the Code of Federal Regulations, Title 49 CFR, Parts 106 through 178, dated 1 October 1992. The packaged commodity used for the test were eight simulated JATO igniters, each weighing 4.5 kg (10 pounds). This represents the current maximum commodity weight. Gross weight of the loaded box was 50 kg (110 pounds). The test results indicate that the box has conformed to the POP requirements.

**14. SUBJECT TERMS**

POP Test of JATO Igniter Wood Box

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## INTRODUCTION

This Performance Oriented Packaging (POP) test was performed to ascertain whether the JATO Igniter Wood Box (Drawing #3361AS100) meets the Packing Group II requirements specified by the Code of Federal Regulations, Title 49 CFR, Parts 106 through 178, dated 1 October 1992. The packaged commodity used for the test were eight simulated JATO igniters, each weighing 4.5 kg (10 pounds). This represents the current maximum commodity weight. Gross weight of the loaded box was 50 kg (110 pounds).

Due to unavailability only one box was used for testing. This is less than the number required by the regulations. Approval for this deviation has been granted by the Under Secretary of Defense, Memorandum for the Joint Logistics Commanders dated 22 February 1990.

## TESTS PERFORMED

### 1. Base Level Vibration Test

This test was performed in accordance with Title 49 CFR 178.608. The box was placed on a repetitive shock platform which has a vertical linear motion of 1-inch double amplitude. Movement of the box was restricted during vibration in all but the vertical direction. The frequency of the platform was increased until the box left the platform 1/16 of an inch at some instant during each cycle. Test time was 1 hour.

### 2. Stacking Test

This test was performed in accordance with Title 49 CFR 178.606. The box was subjected to a force applied to its top surface equivalent to the total weight of identical packages stacked to a minimum height of 3 meters (including the test box). A weight of 599 kg (1,320 pounds) was stacked on the test box. The test was performed for 24 hours. The weight was then removed and the box examined.

### 3. Drop Test

This test was performed in accordance with Title 49 CFR 178.603. Five drops were performed from a height of 1.2 meters (4 feet), impacting the following surfaces:

a. Flat bottom.

b. Flat top.

c. Flat on long side.

d. Flat on short side.

e. One corner.

## PASS/FAIL

### 1. Base Level Vibration Test

The criteria for passing the base level vibration test is outlined in Title 49 CFR 178.608(c): No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.

### 2. Stacking Test

The criteria for passing the stacking test is outlined in Title 49 CFR 178.606(d): No test sample may show any deterioration which could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

### 3. Drop Test

The criteria for passing the drop test is outlined in Title 49 CFR 178.603(f): A package is considered to successfully pass the drop tests if for each sample tested, no rupture occurs which would permit spillage of loose explosive substances or articles from the outer packaging.

## TEST RESULTS

### 1. Base Level Vibration Test

Satisfactory.

### 2. Stacking Test

Satisfactory.

### 3. Drop Test

Satisfactory.

## DISCUSSION

### 1. Base Level Vibration Test

The input vibration frequency was 3.8 Hz. Immediately after the vibration test was completed, the box was removed from the platform, turned on its side and inspected. No unfavorable distortion or deterioration was observed.

**2. Stacking Test**

The box was inspected after the 24-hour period was over. No unfavorable distortion or deterioration was observed.

**3. Drop Test**

After each drop, the box was inspected. The contents were completely retained by the box.

## REFERENCE MATERIAL

A. Code of Federal Regulations, Title 49 CFR, Parts 106-178.

B. Bureau of Explosives Tariff No. BOE 6000K Hazardous Materials Regulations of the Department of Transportation by Air, Rail, Highway, Water including Specifications for Shipping Containers.

## DISTRIBUTION LIST

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Crane, IN 47522-5000

## TEST DATA SHEET

| | |
|---|---|
| **POP MARKING:**<br>UN 4C1/Y50/S/**/USA/DOD/NAD<br>**YEAR LAST PACKED OR MANUFACTURED | |
| **Nomenclature:** JATO Igniter Wood Box | |
| **Type:** 4C1 | **NSN:**<br>Not Assigned |
| **Drawing Number or P/N:**<br>3361AS100 | **Outer Packaging Material:**<br>Wood |
| **Dimensions:**<br>30" L x 15-1/8" W x 9-3/8" H | **Gross Weight:**<br>50 kg (110 pounds) |
| **Closure (Method/Type):**<br>Steel Bands | **Tare Weight:**<br>14 kg (30 pounds) |
| **Additional Description:** | |

| | |
|---|---|
| **PACKAGED COMMODITY:** | |
| **Nomenclature:** See table 1 | **NSN(s):** See table 1 |
| **United Nations Number:** See table 1 | |
| **United Nations Packing Group:** II | |
| **Physical State (Solid, Liquid, or Gas):** Solid | |
| **Vapor Pressure (Liquids Only):** N/A **At 50 °C:** N/A **At 55 °C:** N/A | |
| **Consistency/Viscosity:** N/A | **Density/Specific Gravity:** N/A |
| **Amount per Package:** See table 1 | **Flash Point:** N/A |
| **Net Weight:** See table 1 | |

| | |
|---|---|
| **PACKAGED COMMODITY USED FOR TEST:** | |
| **Name:** (8) Simulated Igniter Canisters | **Physical State:** Solid |
| **Consistency:** N/A | **Density/Specific Gravity:** N/A |
| **Test Pressure (Liquids Only):** N/A | **Net Weight:** 36 kg (80 pounds) |
| **Additional Description:** | |

N/A = Not Applicable

# TABLE 1
## Commodities Approved for Shipping in the JATO Igniter Wood Box

| NALC/ DODIC | NSN | Commodity Nomenclature | Packing Document Number | Haz Class/Div | UN Number | Units/ Package | Total Net Weight kg (lb) | Total Gross Weight kg (lb) |
|---|---|---|---|---|---|---|---|---|
| H422 | 1340-01-104-7841 | Mk 296 Mod 0 JATO Igniter | 3361AS100 | 1.2G | 0314 | 8 | 36 (80) | 50 (110) |